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## Space Congress Programs

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4-26-1978

# 1978 Fifteenth Space Congress Program

Canaveral Council of Technical Societies

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# FIFTEENTH

# PROGRAM

COCOA BEACH, FLORIDA • APRIL 26, 27, 28, 1978

## FIFTEENTH SPACE CONGRESS COMMITTEE

### GENERAL CHAIRMAN

*William C. (Bill) Holmes*

Boeing Services International, Inc.

### VICE CHAIRMAN

*Gene McCoy*

NASA, Kennedy Space Center

### ASSISTANT TO CHAIRMAN

*John W. Griffin*

Boeing Services International, Inc.

### FINANCE

*E. M. (Skip) Lauer*

Guest Realty, Inc.

### PROGRAM CHAIRMAN

*James W. (Jim) Johnson*

NASA, Kennedy Space Center

### TECHNICAL PAPERS

*Raymond J. (Ray) Cerrato*

NASA, Kennedy Space Center

### SPECIAL ARRANGEMENTS

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Air Force Eastern Test Range

### LOCAL ACCOMMODATIONS

*Paul B. Bruns*

Rockwell International Corp.

### LOCAL SUPPORT

*George M. Smith*

IBM

### PUBLICATIONS AND GRAPHICS

*Ulys (Nick) Nickle*

Boeing Services International, Inc.

### PUBLICITY

*Charles W. (Chuck) Morley*

### REGISTRATION

*Ritchie McConahy*

Martin Marietta Aerospace

### EXHIBITS

*L. E. (Gene) Jensen*

Boeing Services International, Inc.

### SCIENCE FAIR

*Craig A. Brosius*

Brevard County School Board

### LEGAL

*Malcolm (Mal) Kirschenbaum*

Attorney

### RECORDING SECRETARY

*Ingrid Willsey*

Boeing Services International, Inc.

### CCTS

*Dr. Ray Work*

Florida Institute of Technology

## CHAIRMAN'S MESSAGE



THE FIFTEENTH SPACE CONGRESS, developed with the theme, "Space — The Best is Yet to Come," will be an outstanding technical conference. It is designed to present the latest advances in aerospace technology in an environment most conducive to information exchange.

Our program this year has six technical paper sessions to allow you maximum participation in the technical programs. We will cover a variety of topics including communications, technology transfer/utilization, advanced technology, future programs, and international advances in space transportation. We are also including a session on energy based on the interest displayed in the past two years.

We have retained the format of completing the technical presentations of the paper sessions with broadranging, highly interactive panel sessions. We have 3 panel sessions this year; the first addressing the Space Transportation System near term; the second a night session on Thursday with the astronauts; and finally on Friday a session designed around our theme, SPACE — THE BEST IS YET TO COME, which will look at space in the far off future. As in the past, we will have some of the foremost leaders in the business from government and industry as panel members.

In addition to the technical sessions, we will again have a fine exhibit hall with many interesting displays of the latest in technology. To add to the enjoyment of the SPACE CONGRESS and to provide a refreshing break in the busy technical program, we have scheduled some outstanding social activities. A banquet on Wednesday night and a luncheon on Thursday, as well as the informal gatherings after the technical sessions, will give everyone an opportunity to meet new people and renew old acquaintances.

I'd like to remind you that Florida in the spring is a wonderful place to visit. With the many attractions, such as Disney World, Sea World, and the beautiful beaches of Brevard County, central Florida has become one of the finest vacation spots in the country. Plan to join us now for another outstanding SPACE CONGRESS.

A handwritten signature of William C. Holmes in dark ink.

William C. Holmes  
General Chairman  
Fifteenth Space Congress

## GENERAL INFORMATION

### HEADQUARTERS/REGISTRATION

Headquarters for the Fifteenth Space Congress is the Beachside Motel, Cocoa Beach. The telephone number for the Headquarters is (305) 784-2143. Registration will take place in the Beachside Motel Lobby starting at 12 noon Tuesday, April 25, for early arrivals. Registration will continue on Wednesday through Friday from 8:00 a.m. to 5:00 p.m. The telephone number for the Registration Desk is (305) 784-2430.

The following choices are available to registrants:

	Cost:
PACKAGE REGISTRATION. . . . .	\$35.00
(Includes 4 items listed below)	
Wednesday Banquet. . . . .	10.00
Thursday Luncheon. . . . .	4.00
Proceedings . . . . .	12.50
Registration . . . . .	15.00

The Package Registration will save you money; however, each item may be purchased individually at the regular price. Individual papers in the proceedings will be available at a cost of \$1.00 per copy.

### PRESS ROOM

Press Headquarters is in Room 106 of the Beachside Motel and is manned by Chuck Morley and his staff from 8:00 a.m. to 5:00 p.m. on Wednesday and Thursday and from 8:00 a.m. to 2:00 p.m. on Friday. The telephone number in the Press Headquarters is (305) 784-0491.

### MESSAGE CENTER

A message center will be located in the Lobby of the Beachside Motel. Messages and telephone calls will be placed on a message board in the Beachside Motel Lobby. During the Congress hours, calls to this center should be placed to (305) 784-2143. After session hours, calls can be made to the Beachside Motel operator at (305) 783-9441.

### AUTO RENTALS

Reservations and rentals can be made at Cocoa Beach or at the Melbourne and Orlando (McCoy) airports. Agencies include:

AVIS	Econo-Car
Budget	Hertz

### ATTRACTION CENTERS

April in Florida is a delightful time for the entire family. Cocoa Beach, with its famed golden beaches, fishing opportunities and surfing, is but one of many Florida family vacation centers. Just to the north of the Space Congress Headquarters is the Vehicle Assembly Building, at Kennedy Space Center. Within a short scenic drive one can reach — a world of vacation fun in the Magic Kingdom of Walt Disney World — Sea World, America's

most elaborate marine life park — the mystery and excitement of Africa at Busch Gardens — the famed Glass Bottom Boats at Silver Springs — or the daily water ski revue with beautiful aquamaids at Cypress Gardens.

### SESSION LOCATIONS

Panel Sessions will be held in the Cape Colony Convention Center (across the street from the Beachside Motel) and Atlantis Beach Convention Center (one block south of the Beachside Motel) from 8:30 a.m. to 11:30 a.m. on Wednesday, April 26 and Friday, April 28, and from 7:00 p.m. to 8:30 p.m. on Thursday, April 27.

Technical Papers Sessions are held in the Beachside Gold Room, Cape Colony Convention Center, and the Atlantis Beach Convention Center.

The Wednesday Banquet will be held in the Beachside Gold Room at 7:30 p.m. and the Thursday Luncheon will be held in the Atlantis Beach Convention Center.

### PROCEEDINGS

The Proceedings of the Fifteenth Space Congress will be available at the Registration Desk in the Beachside Motel Lobby during the Space Congress. Individual papers are available for \$1.00 per copy at the Registration Desk.

After the close of the Space Congress, additional proceedings can be purchased for \$25.00 each plus postage from:

Secretary, CCTS  
Post Office Box 245  
Cape Canaveral, Florida 32920

CCTS will also have a table in the Registration area selling available previous Space Congress Proceedings at reduced rates.

### EXHIBITS

Exhibits will include displays of the Space Shuttle, Shuttle payloads, solar energy and communication satellites. The Exhibit Hall will be open to the public Wednesday through Friday in the Atlantis Beach Convention Center.

The Exhibit Hall will be open from 8:00 a.m. till 5:00 p.m. on Wednesday, from 8:00 a.m. till 7:00 p.m. on Thursday, and from 8:00 till 2:00 p.m. on Friday. Representatives of the exhibits will be in attendance to assist and inform visitors. The telephone numbers at the Atlantis Beach Exhibit Hall is (305) 783-9431, extension 240.

The general public is invited to view the exhibits.

### EXHIBITORS

United Technologies Corporation  
Chemical System Division  
Hamilton Standard  
Chemical Systems Division of United Technologies Corporation  
Hamilton Standard Division of United Technologies Corp.  
Lockheed Missiles and Space Company, Inc.  
IBM  
TRW  
Planning Research Corporation (PRC)  
Kodak  
Rockwell International Corporation  
Computer Science Corporation

Capital Radio Engineering Institute  
Lykes Electronics Corporation  
Boeing  
National Aeronautics and Space Administration  
Brevard Community College

## YOUTH SCIENCE FAIR

Regional Youth Science Fair displays and demonstrations will be open to the public at the Atlantis Beach Lower Lobby. Exhibits will be judged and awards will be presented at the Atlantis Beach Convention Center on Friday at 1:00 p.m.

## OPEN HOUSE

Patrick Air Force Base will hold an open house Friday from 1:00 p.m. till 6:00 p.m. featuring a flight demonstration by the United States Air Force Thunderbirds at 5:00 p.m. and precision sky diving by the United States Army Golden Knights at 4:00 p.m.

## PIONEERS DAY

The Missile, Space and Range Pioneer's cocktail party and banquet will be held on Friday evening, April 28, following the final session of the Fifteenth Space Congress. The Pioneers are the men and women who have been associated with aerospace since the beginning of the space program. Their banquet is an event well worth attending.

The Annual Reunion Banquet is scheduled for the Cape Colony Convention Center at 7:30 p.m. Banquet reservations are available from Pioneer representatives during the Congress in the Beachside Lobby.

Wednesday, April 26 — 8:30 to 11:30 a.m.  
PANEL SESSION

### SPACE TODAY Cape Colony Convention Center

John Yardley, Associate Administrator for the office of Space Flight, NASA Headquarters, Washington, D.C. — Panel Chairman.

Mr. Leonard Jaffe, Deputy Associative Administrator, Office of Space and Terrestrial Applications, NASA Headquarters, Washington, D. C.

Dr. Kurt Debus, Consultant, OTRAG, Stuttgart, Germany.

Major General Edwin A. Coy, Director of Space, Deputy Chief of Staff/R&D, Headquarters, U. S. Air Force, Washington, D. C.

Mr. Maxwell W. Hunter II, Deputy Vice President and Program Manager - Space Telescope, Lockheed Missile and Space Corporation, Sunnyvale, California.

The fifth panel speaker will be a distinguished representative from the European Space Agency.

Wednesday, April 26 — 1:30 to 4:30 p.m.  
PAPER SESSION I

### A. SPACE TRANSPORTATION TODAY Cape Colony Convention Center

Session Chairman: Philip E. Culbertson, Deputy Associate Administrator for Space Transportation Systems (Technical), NASA Headquarters, Washington, D.C.

Session Organizer: James Perris, Sciences, Technology and Applications Office, NASA, Kennedy Space Center, Florida.

1. "The ARIANE Programs; Status and Outlook" — Raymond M. Orye, Assistant Director for the ARIANE Project, European Space Agency, Paris, France.
2. "Space Program of NASDA, Japan" — Yasuhiro Kuroda, Special Assistant to the President and Akira Kubozono, Deputy Director of Systems Planning Department, National Space Development Agency of Japan (NASDA), Tokyo, Japan.
3. "Problems Faced by Early Space Transportation Planners" — John L. Sloop, Bethesda, Maryland.
4. "Space Transportation System for the Future" — Gerald M. Hanley, Program Manager, Satellite Power Systems, Rockwell International Space Division, Downey, California.

## B. FEDERAL LABORATORIES FOR TECHNOLOGY TRANSFER Atlantis Beach Convention Center

Session Chairman: George F. Linsteadt, Chairman, Federal Laboratory Consortium for Technology Transfer, Naval Weapons Center, China Lake, California.

Session Organizer: William H. Brown, Sciences, Technology and Applications Office, NASA, Kennedy Space Center, Florida.

1. "Federal Laboratory Consortium for Technology Transfer — A National Resource" — George F. Linsteadt, Chairman, Federal Laboratory Consortium for Technology Transfer, Naval Weapons Center, China Lake, California.
2. "Technology Transfer and the Coast Guard R & D Center" — Michael J. D'Angelo, Assistant Director for Administrator and Services, U.S. Coast Guard, R&D Center, Groton, Connecticut.
3. "Technology Transfer at the Department of Energy Laboratories — Selected Case Studies from the Lawrence Livermore Laboratory" — Dr. David W. Dorn, Program Manager, Technology Applications Group, Lawrence Livermore Laboratory, Livermore, California.
4. "Department of Defense Technology Transfer — Civilian Uses of Military Know-How" — Gerald E. Miller, Technology Transfer Coordinator, State of Oregon, Salem, Oregon.
5. "Observations on Short-Term and Long-Range Plans for Technology Transfer to State and Local Governments" — James M. Wyckoff, Liaison Officer, State and Local Governmental Affairs, National Bureau of Standards, U.S. Department of Commerce, Washington, D.C.

Wednesday Evening  
SPACE CONGRESS BANQUET  
Beachside — Gold Room  
6:00 to 7:15 p.m. — Cocktail Party  
7:30 p.m. — Banquet

**INTRODUCTION:** William C. Holmes, General Chairman

**SPEAKER:** John Young, Chief, Astronaut Office, NASA, Johnson Space Center, Houston, Texas and Commander of the first Orbital Flight Test (OFT-1) of the Space Shuttle.

John Young speaks to us as a man scheduled to ride on the Space Shuttle's first Orbital Flight Test (OFT) next year. This will be his second test flight of a new spacecraft as he flew with Gus Grissom on Gemini 3, back in 1965, on that spacecraft's maiden voyage of three orbits. John later flew as Commander of the altitude record breaking Gemini 10/Agena mission.

The Apollo Program was a natural for John and he "got down among them" during Apollo 10's lunar landing dress rehearsal, descending to within 8 nautical miles of the Moon. John landed on the Moon as Commander of Apollo 16, April 20, 1972, where he and Charles Duke hotrodded their Lunar Rover over the Cayley Plains at Descartes Crater. They inspected, surveyed, and sampled the rugged lunar highlands, their rover's wheels spewing colorful rooster tails of lunar sand in their wake. In all, they spent 71 hours and 14 minutes on the surface of the Moon, logging 20 hours and 15 minutes EVA time each.

Selected by NASA as an astronaut in 1962, John has flown 533 hours and 33 minutes in space, bringing his total logged flying time to over 7,600 hours. He was also backup pilot for Gemini 6, backup command module pilot of Apollo 7, and backup commander for Apollo 13 and 17.

Although he was born in San Francisco, John was raised in neighboring Orlando, where he graduated from Orlando High School. He went on to become a "ramblin' wreck," receiving his B.S. degree in Aeronautical Engineering with highest honors from the Georgia Institute of Technology in 1952. Then on to the Navy, where John served on a destroyer before receiving flight training in props, jets, and helicopters. Four years of flying "Cougars" and "Crusaders" for Fighter Squadron 103 followed. Next it was the U.S. Navy Test Pilot School in 1959, followed by the Naval Air Test Center for three years, where his test projects included evaluations of the "Crusader" and "Phantom" fighter weapons systems. While he was maintenance officer of the "Phantom" Fighter Squadron 143 at NAS, Miramar, California, John set world time-to-climb records to 3,000 and 25,000 meter altitude in the "Phantom." He retired from the Navy, September 1976, after completing almost 25 years of active military service.

In January 1975, John was named Chief of the Astronaut Office, responsible for the coordination, scheduling, and control of the activities of astronauts in flight operations at the Johnson Space Center. Prior to that, he had responsibility for the Space Shuttle Branch of the Astronaut Office, providing operational and engineering astronaut support for the Space Shuttle Program.

A Fellow of the American Astronautical Society, an Associate Fellow of the Society of Experimental Test Pilots (SETP), and



a member of the American Institute of Aeronautics and Astronautics, John has received numerous awards. Included in these are: two NASA Distinguished Service and Exceptional Service Medals, the Navy Astronaut Wings, two Navy Distinguished Service Medals, three Navy Distinguished Flying Crosses, the Georgia Tech Distinguished Young Alumni Award (1965), and the Distinguished Service Alumni Award (1972), the SETP Iven C. Kincheloe Award (1972), the AAS Flight Achievement Award (1972), and the AIAA Haley Astronautics Award (1973).

John is married to the former Suzy Feldman of St. Louis, Missouri. They have two children; Sandy and John.

No stranger to the Space Congress, having presented papers in past years, John is also serving on this year's free "Meet The Astronauts" panel Thursday evening.

**Thursday, April 27 — 8:30 — 11:30 a.m.**  
**PAPER SESSION II**

### **A. ENERGY** **Cape Colony Convention Center**

**Session Chairman:** Dr. David L. Block, Director, Florida Solar Energy Center, Cape Canaveral, Florida.

**Session Organizer:** James Perris, Sciences, Technology and Applications Office, NASA, Kennedy Space Center, Florida.

1. "An Economist Looks at Solar Energy: The Government's Role" — Elliott Roseman, Economic Analyst, Department of Energy, Division of Solar Applications, Washington, D.C.
2. "Energy Management Through Planning — The Florida Experience" — Dr. Carlos S. Warren, Director of the Florida Energy Office, Department of Administration, Tallahassee, Florida.
3. "Identification of Cost Effective Energy Conservation Methods" — Dr. Harvey S. Bierenbaum, Manager, Energy Conservation, Planning Research Corporation, Cocoa Beach, Florida and Wallace H. Boggs, Energy Projects, NASA, Kennedy Space Center, Florida.
4. "Current Solar Applications and Economics" — Douglass Root, Educational Consultant, Florida Solar Energy Center, Cape Canaveral, Florida.
5. "The Solar Heating and Cooling Commercial Demonstration Program at Marshall Space Flight Center — Some Problems and Conclusions" — Robert L. Middleton, P.E., Manager of Solar Heating and Cooling Demonstration Sites, Solar Heating and Cooling Project Office, NASA, Marshall Space Flight Center, Alabama.

### **B. FUTURE PROGRAMS** **Beachside Gold Room**

**Session Chairman:** Capt. Robert F. Freitag, Deputy Director, Advanced Programs, NASA Headquarters, Washington, D.C.

**Session Organizer:** Paul D. Toft, Sciences, Technology and Applications Office, NASA, Kennedy Space Center, Florida.

1. "Overview of Future Programs — USA" — Capt. Robert F. Freitag, Deputy Director, Advanced Programs, NASA Headquarters, Washington, D.C.



2. "Overview of Future Programs — European" — Speaker to be determined.
3. "Opportunities in Advanced Space Transportation Systems" — Maxwell W. Hunter, Vice President and Deputy Program Manager, Space Telescope Lockheed Missile and Space Corporation, Sunnyvale, California.
4. "Large Scale Human Benefits from the Industrialization of Space" — Charles Gould, Program Manager, Space Industrialization, Rockwell International, Downey, California.
5. "Economic Opportunities of Space Enterprises in the Next Decades" — Dr. Klaus Heiss, President, ECON, Inc., Princeton, New Jersey.

## SPACE CONGRESS LUNCHEON

### Thursday — 12 noon

### Atlantis Beach Convention Center

**INTRODUCTION:** William C. Holmes, General Chairman

**SPEAKER:** Gerald D. Griffin, Deputy Director of NASA's John F. Kennedy Space Center, Florida.

Gerry is our new Deputy Director at KSC. He came here from NASA's Dryden Flight Research Center in California where he was also Deputy Director.

Named NASA Assistant Administrator for Legislative Affairs in 1973, Griffin was later appointed Deputy Associate Administrator (Operations) in the Office of Space Flight, serving in that position until 1976.



Before joining NASA Headquarters, Gerry worked at NASA's Johnson Space Center near Houston, Texas, where he was a Flight Director for all eleven manned Apollo missions. He was lead Flight Director for Apollos 12, 15, and 17. Prior to Apollo, he served as a flight controller in Mission Control for the Gemini missions. He joined the Johnson Space Center (then Manned Spacecraft Center) in 1964 and was named Flight Director in 1968.

He was awarded NASA's Exceptional Service Medal for his work on Apollos 12 and 15, the Presidential Medal of Freedom Group Achievement Award for Apollo 13, and the NASA Headquarters Creative Management Award in May 1975.

Griffin graduated from Texas A&M University in 1956 with a B.S. degree in Aeronautical Engineering and spent four years as a flying officer in the U.S. Air Force.

Prior to joining NASA, he worked as an aerospace engineer with the Douglas Aircraft Company, Lockheed Missiles and Space Company, Inc., and General Dynamics/Fort Worth.

A native Texan, Gerry was born in Athens. He is married to the former Sandra Jo Huber of Brownwood, Texas, and they have two children. This is Gerry's first Space Congress, and our first opportunity to welcome him to KSC and the Space Coast.

Thursday, April 27 — 2:00 to 5:00 p.m.

## PAPER SESSION III

### A. TECHNOLOGY UTILIZATION

#### Cape Colony Convention Center

**Session Chairman:** Louis N. Mogavero, Director, Technology Utilization Office, NASA Headquarters, Washington, D.C.

**Session Organizer:** Thomas M. Hammond, Sciences, Technology and Applications Office, NASA, Kennedy Space Center, Florida.

1. "Medical Technology Transfer" — Dr. James Brown, Director, Center for Technology Applications, Research Triangle Institute, Research Triangle Park, North Carolina.
2. "The NASA-FLORIDA State Technology Applications Center" — Dr. Robert Ramey, Director, and John W. Hoover, P.E., Associate Director, NASA/Florida State Technology Applications Center, Gainesville, Florida.
3. "Application of NASA Technology to a Rapid Transit System" — E. Randolph Preston, Director and Preston Beck, NASA Representative, Transit System Development, Metropolitan Dade County, Office of Transportation Administration, Miami, Florida.
4. "The NASA — IITRI Manufacturing Applications Team; Solving Manufacturing Problems Through Aerospace Technology" — Edmund R. Bangs, Assistant Director, NASA Manufacturing Technology, IIT Research Institute, Chicago, Illinois.
5. "NASA Technology Utilization Program: A Cost Benefit Evaluation" — F. Douglas Johnson, Project Manager, Transfer Research and Impact Studies Program and Martin Kokus, Research Scientist, Industrial Economic Division, Denver Research Institute, Denver, Colorado.

### B. ADVANCED TECHNOLOGY

#### Beachside Gold Room

**Session Chairman:** Paul F. Holloway, Director for Space, NASA Langley Research Center, Hampton, Virginia.

**Session Organizer:** Arthur Henderson, Jr., Space Technology Coordination Office, NASA Headquarters, Washington, D.C.

1. "Information Systems" — Dr. Peter R. Kurzhals, Director, Electronics Division, NASA Headquarters, Washington, D.C.
2. "Space Power for Space" — Jerome P. Mullin, Chief, Space Power Systems Branch, NASA Headquarters, Washington, D.C.
3. "Technology for Space Transportation Systems" — Frank W. Stephenson, Jr., Space Propellant and Power Division, NASA Headquarters, Washington, D.C.
4. "OAST Planning Model for Space Systems Technology" — Stanley R. Sadin, Program for Space Systems Studies, Study Analysis and Planning Office, NASA Headquarters, Washington, D.C.
5. "A Technology Program for Large Area Space Systems" — Angelo Guastafierro, Manager of the Large Space Systems Technology Program, NASA, Langley Research Center, Hampton, Virginia, and Lyle M. Jenkins, Spacecraft Design Division, NASA, Johnson Space Center, Houston, Texas.

**Thursday, April 27 — 8:00 to 9:30 p.m.**  
**PANEL SESSION**

**MEET THE ASTRONAUTS  
(OPEN TO THE PUBLIC)  
Cape Colony Convention Center**

Lee Scherer, Center Director, Kennedy Space Center, NASA,  
Kennedy Space Center, Florida — Panel Chairman.

Deke Slayton, Manager of Shuttle Approach and Landing Test  
Program, NASA, Johnson Space Center, Texas.

John Young, Chief of the Astronaut Office, NASA, Johnson  
Space Center, Texas.

Joe Engle, Shuttle Approach and Landing Test Pilot, NASA,  
Johnson Space Center, Texas.

Vance D. Brand, Shuttle Astronaut, Johnson Space Center,  
Texas.

**Friday, April 28 — 8:30 to 11:30 a.m.**  
**PANEL SESSION**

**SPACE, THE BEST IS YET TO COME  
Atlantis Beach Convention Center**

Dr. George Morgenthauer, Vice President and General Manager,  
Martin Marietta Aerospace, Baltimore Division, Baltimore,  
Maryland — Panel Chairman.

Dr. Hartunian, Vice President of Aerospace Corporation,  
El Segundo, California.

Roger Johnson, Assistant to the Director, Manned Space,  
Grumman Aerospace, Bethpage, New York.

Arthur M. Dula, Member of Staff, Bulter, Dinion, Rice, Cook  
and Knapp, Attorneys-at-Law, Houston, Texas.

A representative to be determined from the International  
Aerospace Industry will also serve on this panel.

**Friday, April 28 — 1:00 p.m.**

**YOUTH SCIENCE FAIR  
AWARDS CEREMONY  
Atlantis Beach Convention Center**

**INTRODUCTION:** Craig Brosius, Science Fair Chairman

**PRESENTATION:** William C. Holmes, General Chairman

The Youth Science Fair Exhibits will have been judged during  
the Congress by a select panel with expertise in their scientific  
field. Relatives and friends of the exhibitors are invited to  
attend this ceremony.

**Friday, April 28 — 1:00 to 6:00 p.m.**

**OPEN HOUSE  
PATRICK AIR FORCE BASE**

Patrick Air Force Base is located a few miles south of the  
Congress Headquarters on Highway A1A. Open House —  
including aircraft displays — will begin at 1:00 p.m. The U.S.  
Air Force Thunderbirds will perform at 5:00 p.m. and the  
U.S. Army Golden Knights will perform at 4:00 p.m.

The general public is invited to attend.

**Friday Evening  
MISSILE, SPACE AND RANGE PIONEERS  
12TH ANNUAL REUNION BANQUET  
Cape Colony Convention Center  
7:00 to 7:30 p.m. — Cocktail Party  
7:30 p.m. — Banquet**

**INTRODUCTION:** Ray Hill, President

**SPEAKER:** Allen H. Neuharth, President and Chief  
Executive, Gannett Company, Inc.

In addition to an outstanding speaker discussing communication  
problems of today, an unveiling will take place. A monument  
commemorating manned launches will be unveiled at the  
banquet. The monument will be placed at Complex 14 at  
Cape Canaveral Air Force Station as a tribute to the U.S. Early  
Manned Space Program. The unveiling will be performed by one  
of the original seven astronauts, Mr. Deke Slayton.

**SPONSOR**

The Fifteenth Space Congress is sponsored by the Canaveral  
Council of Technical Societies (CCTS). The Canaveral Council  
of Technical Societies is composed of the Cape Canaveral area  
affiliates of national, technical, and professional societies, and  
an academic advisory group from five colleges and universities  
operating locally, the Brevard Council, Inc., the Brevard County  
Commission, the Brevard County School Board and the Brevard  
Economic Development Council.

**CANAVERAL COUNCIL OF  
TECHNICAL SOCIETIES**

Air Force Association

American Institute of  
Aeronautics and Astronautics

American Institute of  
Architects

American Institute of  
Industrial Engineers



American Institute of  
Plant Engineers

American Meteorological Society

American Society of  
Civil Engineers

American Society of  
Mechanical Engineers

Society of Photogrammetry/  
Photo-Optical Instrumentation  
Engineers

American Society of  
Safety Engineers

American Society for  
Industrial Security

American Society for  
Quality Control

American Society for  
Training and Development

American Welding Society

Armed Forces Communication  
Electronics Association

Coalition of Aerospace  
Professional Engineers

Florida Engineering Society

Society of Women Engineers

Institute of Electrical  
and Electronic Engineers

Instrument Society of America

Missile, Space and Range  
Pioneers, Incorporated

National Contract  
Management Association

Society of American  
Military Engineers

Society of Logistics Engineers

Society for Technical  
Communication

## ACKNOWLEDGEMENT

The Fifteenth Space Congress gratefully acknowledges the special support of the following organizations:

Air Force Eastern Test Range

Atlantis Beach Lodge

Barnett Bank

Beachside Motel

Boeing Services International

Brevard Community College

Brevard County School System

Cape Colony Inn

Guest Reality, Inc.

Florida Institute of Technology

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National Aeronautics and Space Administration

Newspapers: SUN, BREVARD SENTINEL, ORLANDO  
SENTINEL, SENTINEL STAR, and TODAY

Osceola Groves

Planning Research Corporation

Radio Stations: WEZY, WKKO, WMEL, WMMB,  
WMDO, WRMF, and WWBC

Ramons

Rockwell International Corporation

Bob Steele Chevrolet

Sullivan Victory Groves

Technicolor

Television Stations: WESH-TV, WDBO-TV, WFTV, and  
WMFE-TV

United National Bank of Cocoa Beach

## PROGRAM SUMMARY

### Monday, April 24

Press Conference 3:00 p.m. Beachside Gold Room

### Tuesday, April 25

Registration Desk Opens 12:00 noon Beachside Lobby

### Wednesday, April 26

Author's Breakfast 7:30 a.m. Cape Colony  
Registration Desk Opens 8:00 a.m. Beachside Lobby  
Panel Session — Space Today 8:30 a.m. Cape Colony Convention Center

Exhibits and Youth Science Fair 10:00 a.m. Atlantis Beach

### Paper Session I

A. Space Transportation Today 1:30 p.m. Cape Colony Convention Center  
B. Federal Laboratories for Technology Transfer 1:30 p.m. Atlantis Beach

Cocktail Party 6:00 p.m. Beachside Gold Room

Space Congress Banquet 7:30 p.m. Beachside Gold Room

### Thursday, April 27

Author's Breakfast 7:30 a.m. Cape Colony  
Registration Desk Opens 8:00 a.m. Beachside Lobby

### Paper Session II

A. Energy 8:30 a.m. Cape Colony Convention Center  
B. Future Programs 8:30 a.m. Beachside Gold Room

Exhibits and Youth Science Fair 10:00 a.m. Atlantis Beach

Space Congress Luncheon 12:00 noon Atlantis Beach Convention Center

### Paper Session III

A. Technology Utilization 2:00 p.m. Cape Colony Convention Center  
B. Advanced Technology 2:00 p.m. Beachside Gold Room

Exhibitors Cocktail Party 5:00 p.m. Atlantis Beach

Panel Session — Meet the Astronauts 8:00 p.m. Cape Colony Convention Center

### Friday, April 28

Author's Breakfast 7:30 a.m. Cape Colony  
Registration Desk Opens 8:00 a.m. Beachside Lobby  
Panel Session — Space, The Best is Yet to Come 8:30 a.m. Atlantis Beach Convention Center  
Exhibits 10:00 a.m. Atlantis Beach Convention Center

Science Fair Awards Ceremony 1:00 p.m. Atlantis Beach Convention Center

Patrick Air Force Base Open House featuring The Thunderbirds and Golden Knights 1-6:00 p.m.

The map below gives the exact location of each nearby Florida attraction.



# NOTES





FIFTEENTH SPACE CONGRESS  
Post Office Box 245  
Cape Canaveral, Florida 32920

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